IMMIGRANTS IN SOUTH AFRICA

Perceptions and reality in Witbank, a medium-sized industrial town

Many South Africans believe their country is being swamped by illegal immigrants, largely from neighbouring states. It is also widely believed that, fuelled by xenophobia, South Africans commonly treat immigrants in a hostile way. These beliefs are among those dispelled by a CDE case study of immigration and attitudes to immigrants in the industrial town of Witbank. While aspects of these findings need to be confirmed by other studies forming part of the wider CDE project on immigration and xenophobia, they have important implications for the debate on immigration issues in South Africa.

South Africa, like many developed and some developing countries, faces difficult policy challenges arising from immigration. Immigration issues are hard to tackle because they spread across many areas of public policy, and affect many sensitive interests. In South Africa, two factors help to complicate the issues and make credible, sustainable policies of migration management more difficult to achieve. The first is the widespread belief that South Africa is being swamped by (mostly illegal) immigrants, largely from neighbouring states. It is extremely difficult to accurately estimate the number of foreigners in the country. As a result, the lack of authoritative figures gives currency to wildly improbable popular perceptions of the scope of immigration.

The second factor is the hostility to foreigners in South Africa that occasionally manifests itself in outbreaks of social violence usually attributed to xenophobia. Xenophobia is one of a family of words that denote at best a distance from, and at worst a rejection of and hostility towards, people who are ‘other’, or alien. Racism belongs to the same family. It is perhaps because of this family resemblance that xenophobic attitudes and behaviour in South Africa today are a matter of sensitivity and concern, especially because of their human rights implications.
Xenophobia is an undeniable social reality in South Africa, but it is important to understand South Africans’ reputation for xenophobia on the basis of sound information, and to assess its importance through seeing it in perspective. It is also important to understand the circumstances under which negative attitudes fuel hostile acts.

In the interests of gaining better-informed perspectives on immigration and xenophobia, CDE is conducting a major study of migration policy issues in South Africa. The project pays special attention to the country’s shortage of skills as well as to xenophobia and its impact on migrants, on trends in immigration policy generally, and on how this phenomenon should be combated.

The central objectives of the Witbank case study were to investigate the nature and extent of immigration to the town, the roles of immigrants in the local economy, and the nature and prevalence of xenophobic attitudes among Witbank residents towards those immigrants (see box: CDE’s research in Witbank, this page). This is the CDE’s research in Witbank

CDE’s Witbank research was also a pilot study for further migration research to be conducted by CDE. It was thus an opportunity to test a research method for the very difficult task of reaching a population that wishes to avoid being identified and enumerated. CDE’s approach was developed in conjunction with an advisory team of leading demographers for a survey of a large urban area, or the entire country. Because Witbank is a small, self-enclosed area, knowledgeable officials and business people were also interviewed in order to triangulate the results and provide a richer perspective.

A total of 200 Witbank residents, 30 local business people, 12 officials, and 50 foreigners were interviewed. The residents were randomly selected. One respondent was interviewed in each household in a face-to-face interview in the language of their choice. Both structured and open-ended questions were used, the latter to allow spontaneous replies. The residents were asked about the number of foreigners in the dwellings immediately surrounding theirs. An attempt was then made to correct any invalid or exaggerated claims through a detailed probe for reasons. Finally, the responses were extrapolated to cautiously estimate the overall numbers of foreigners, legal and otherwise.

Factors that affected statistical precision included the irregular composition and size of households in informal settlements, and a deviation from the sampling intervals in those settlements by selecting households in pairs, thus allowing immediate validation checks on references to foreigners in adjacent households.

The officials and business people were asked to estimate the percentage of foreigners in the town (as well as provide insights into more qualitative aspects of migrant society in Witbank). These results were compared with the extrapolated findings of the random residents’ survey, and used to generate a final estimate.

Next, interviewers identified 50 immigrants and questioned them about their origins, experiences, and attitudes.
first of a number of publications reporting on the project's findings.

It begins with a brief description of Witbank, followed by the main findings. It concludes with some reflections on and questions arising from the findings.

WITBANK: POPULATION AND LOCATION

Based on 2001 census figures and subsequent growth rates, the study assumed a population for Witbank of 207 000, and took the 2001 figures for racial breakdown; Africans 82 per cent (169 740), whites 16 per cent (33 152) and coloureds and Indians 2 per cent (4 144).

Witbank is a mining centre and service town 150 kilometres east of Johannesburg and 300 kilometres from the border between South Africa and southern Mozambique, in the very busy transport corridor between the Mozambican capital of Maputo and South Africa's largest industrial complex, the Witwatersrand. This gives it a more diverse local economy and urban structure than many other regional service centres. Mining, wholesale and retail trade, and social and personal services feature strongly in Witbank’s economy, supported by a number of factors including demand from a relatively large proportion of people formally employed in the industrial sector, and through-traffic on the adjacent highway between Johannesburg and Pretoria and Maputo. Other supporting features are regional strengths in agriculture, animal husbandry, coal and gold mining, tourism and power generation, as well as the relative proximity of former 'homeland' areas established during the apartheid era.

Despite Witbank’s relatively developed local economy, levels of unemployment are high. Extrapolating from the survey results, within a framework of the official figures for the larger municipal region within which our sampling area formed a part, we estimated an unemployment rate of some 38 per cent, a very high level, but on a par with the expanded unemployment rate in the country as a whole.

KEY FINDINGS

Immigrants don’t only head for cities

The survey clearly shows that immigration to South Africa is not confined to metropolitan areas only. It is commonly assumed that immigrants tend to be attracted to large cities in receiving countries. Large cities are centres of economic opportunity, and provide the anonymity (especially for undocumented entrants) that comes from population size and cosmopolitan makeup, as well as the critical mass of immigrant numbers for networks of mutual support. Conversely, smaller, less central urban areas are often assumed to be inhospitable to immigrants. In some ways Witbank resembles many towns and secondary cities in the centre, north west, and north of the country in that many members of the local African communities are ethnically specific to the surrounding region, and most tend to be very poor. In such towns conservative and often parochial Afrikaans-speaking whites dominate the local
Immigrants in Witbank

economies and middle-class social life. In addition, smaller urban centres, by virtue of their relative absence of privacy and anonymity, can leave undocumented immigrants exposed to the attentions of potentially hostile locals and meddling officials. Certainly on the basis of interviews with officials and business people, Witbank appears to be a well-administered town in which most developments are known to the local authority and in which it may be more difficult than in some other towns for illegal immigrants to hide in the social fabric. For these and other reasons, smaller urban centres are less obvious destinations for immigrants, both legal and illegal.

Despite this, we found surprisingly varied and highly visible communities of immigrants from both southern African and more distant countries in Africa and East Asia, many of them probably of non-legal status, pursuing their precarious livelihoods with every hope of staying in the town for a long time, if not permanently.

One of the reasons why Witbank has attracted so many and such a variety of immigrants may be its relative prosperity, bestowed by its status as a centre of coal mining, which sets it off from the typical platteland town. In addition, in retrospect, certain features of Witbank’s location in its region appear to favour substantial and varied immigration:

- It lies on the route traversed not only by Tsonga-speaking Mozambicans on their way to the Witwatersrand industrial area, but also by South African Tsonga speakers who are concentrated 200 to 250 kilometres to the north east of Witbank in eastern Mpumalanga.
- It is between 60 and 100 kilometres south east of KwaMhlanga and Siyabuswa, centres of an Ndebele-speaking concentration associated with the former ‘homeland’ of KwaNdebele. Ndebele is also the dominant language spoken in Matabeleland, a likely factor motivating the movement of people from that part of Zimbabwe to the broader Witbank area, including surrounding farms.
- It is a multilingual town, including speakers of IsiZulu, Sepedi, Xitsonga, siSwati, isiNdebele, English and Afrikaans among others, and is therefore hospitable to migrants from a range of different linguistic groups and cultures.
- Being only 150 kilometres away from Johannesburg and the East Rand, Witbank is an area of immigrant overspill from the crowded industrial heartland of South Africa.
- It is also on the access route of siSwati-speakers from South Africa and Swaziland to the Witwatersrand.

There are fewer immigrants than we think

The numbers of foreign-born people in South Africa are a matter of conjecture, debate, and controversy. The 2001 census gives the overall proportion of foreign-born people in South Africa as 2.29 per cent. This proportion would be higher – roughly 4 to 5 per cent – if only the adult population were used in the calculation. Most people assume, however, that this significantly underestimates the results of undocumented immigration and entry.

There are widely varying and often highly speculative estimates of the numbers of documented and undocumented immigrants in South Africa. These estimates, usually from the mid-1990s, vary from half a million to eight million – a fifth of the entire South African population at the time. Estimates of 2 to 3 million illegal Zimbabwean
migrants have also been, and still are, made, which would mean that 16–23 per cent of that country’s population of 12.7 million, including children, live in South Africa. However, a comprehensive review in 2005 by Jonathan Crush and others enables these authors to make the judgement that the proportion of all foreign-born people is slightly higher than the census estimate: ‘probably closer to 3-5 per cent, with around 500 000 undocumented migrants.’

CDE’s study reached the conclusion that just under 5 per cent of the population of Witbank was foreign-born, within the limits of the estimate by Crush et al for the whole country and, like other serious analyses, far below the inflated figures that dominate public perception. Our estimate of 4.7 per cent for Witbank adults would be roughly 3 per cent of the entire Witbank population (about 6 200 people). Some areas, such as rural subsistence areas, may have a lower proportion, and large cities might have a higher one. If our findings err it is likely to be on the conservative side. An indirect indication from our resident survey is that the proportion may well be higher than the 4.7 per cent of adults stated above. The figures for Witbank could be close to a national figure, though caution is necessary at this stage, and confirmation from more studies is desirable. CDE will conduct similar research in a large city in 2006, which will allow a comparison between a medium-sized town and one of the country’s biggest metropolitan areas.

At this stage, CDE’s results provide broad empirical confirmation of the findings of Crush and others. Our interviews with officials and business people in Witbank confirmed how exaggerated the estimates of quite well-informed people can be, and how greatly they can deviate from empirical evidence.

Who are the immigrants?

The interview and survey results suggest that immigration is a well-established feature of life in Witbank (see box: Facts about immigrants in Witbank, page 6). Many immigrants have been in the Witbank area for 20 years or more. The fact that 60 per cent of the immigrants interviewed said that they had settled there because of ‘social networks’ reinforces the point, and there were no signs in interviews with local residents, officials, businessmen or foreigners themselves that immigration is tailing off. What seems clear is that immigrants are coming from a wide range of ‘sending’ countries. However, although there are now significant communities of people from

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**How foreigners are identified**

Witbank residents use a number of criteria to determine the identity of foreigners, including:

- passports;
- being informed of the foreigners’ nationality;
- relatively reliable linguistic criteria, such as hearing a person speak a foreign language, or an unfamiliar dialect of a local language;
- less reliable methods, such as identifying someone by their skin colour, body odour, or work ethic.

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Immigrants are not primarily attracted by the wage labour that is exceedingly difficult to find all over South Africa, but rather by the market for self-employment of various kinds.
Facts about immigrants in Witbank

- The survey results suggest that 44 per cent of foreigners are younger than 30 years; 34 per cent are 30-39 years old; 8 per cent are 40-49 years old; and 14 per cent are older than 50 years.

- Seventy-two per cent of foreigners are male; 28 per cent are female.

- On average, foreigners stay in Witbank for nine years; 20 per cent of foreigners have stayed longer than 20 years, and 33 per cent for less than four years.

- Countries of origin are Mozambique (50 per cent); Asia (10 per cent); Europe (8 per cent), Zimbabwe (8 per cent), Swaziland (4 per cent); Nigeria and other more distant African countries (20 per cent)

- Foreigners settle in Witbank because of social networks (60 per cent); study opportunities (36 per cent); job searches (24 per cent); job/business opportunities (10 per cent); places to stay (6 per cent); other reasons (2 per cent)

- The employment status of foreigners is: self-employed full-time (24 per cent); employed full-time, but including many retail salesmen working on own account (24 per cent); employed part-time (22 per cent); unemployed, looking for work (16 per cent); self-employed part-time (8 per cent); student (6 per cent)

- The occupational activity among those occupied included selling goods or spaza shop owner (56 per cent); making goods to sell (18 per cent); driver/operator (8 per cent); building trade (10 per cent); gardener (3 per cent); artisan (13 per cent); cleaner (5 per cent); hairdresser (3 per cent) and mining (3 per cent)

- The skills possessed by foreigners were: no skills (34 per cent); sales skills (18 per cent); artisan skills (14 per cent); hairdressing (12 per cent); trained professional/semi professional (8 per cent); craft skills (4 per cent); clerical (2 per cent).

- Their educational qualifications were: primary school (36 per cent); some high school (36 per cent); tertiary and technical (12 per cent); passed some high school (10 per cent); no education (6 per cent)

- Average net income was R2 224 a month. Some 40 per cent earned less than R1 000 a month

- Sixty-five per cent of immigrants interviewed felt they were accepted as South Africans; 35 per cent felt they were seen as immigrants. Reasons given for their perceived acceptance included the ability to speak a South African language (60 per cent); people are accepting and friendly (40 per cent); the ability to speak Xitsonga (14 per cent); and admiration of their work (6 per cent).

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Nigeria, East and South East Asia, as well as East Africans, immigration to Witbank is still dominated by people from southern Mozambique.

Most of the immigrants are very poor when they arrive. Their educational level varies, and is certainly not universally low. It is clear from the occupations of immigrants, however, that they are not primarily attracted by the wage labour that is exceedingly difficult to find all over South Africa, but rather by the market for self-employment of various kinds. Of all the immigrants, only the Zimbabweans have specialised in low-wage manual labour in private household gardens and on farms, and because of this seclusion from the wider fabric of life in Witbank, they were poorly covered in our samples and probably underestimated, perhaps significantly. The extent of their numbers as the second largest immigrant group in the perceptions of locals became apparent only through the estimates of residents, officials, and business people.

Most of the other immigrants are self-employed at various levels, namely:

- the micro informal manufacturing and retail sector in the case of Mozambicans;
- a mixed array of retail and service enterprises in the case of Nigerians (including significant non-legal activity); and
- small to medium-sized retail and some manufacturing enterprises in the case of Chinese, Indians, and Pakistanis.

The immigrants, therefore, are a notably self-reliant community. Despite the fact that at least 15 per cent to 17 per cent of the immigrants in our small sample had arrived since the second half of 2004, the rate of unemployment among them was less than half of what it is in the local community at large.

Local people express hostility towards immigrants

Large majorities of every racial group among Witbank residents expressed uncompromisingly negative views of and attitudes towards immigrants. This seemed to confirm, initially at least, South Africa’s reputation for xenophobia. According to this consensus of stereotypes, immigrants commit serious crimes, reduce opportunities for locals by taking their jobs and displacing them as small traders, are troublesome, and a burden to the local administration. Other common responses were that immigrants caused overcrowding, utilised public services and amenities to which they were not entitled, spread disease, and (according to many African residents) were ‘less civilised’ than South Africans. In open-ended probes with spontaneous answers, local people had virtually nothing positive to say about immigrants.

What also emerged was a hierarchy of rejection, with Nigerians, Mozambicans, and Zimbabweans least liked; Indians, Pakistanis, and Chinese in an ambivalent middle position; and Europeans fully acceptable and popular, more so among African residents than among whites.

The reason why so many Africans, and many whites as well, clearly favoured European immigrants are the resources and expertise they are perceived to bring with them: many local people were aware of South Africa’s needs for skills and capital for development.
**Immigrants in Witbank**

**But they also admire migrant skills and self-reliance**

When we moved on from the open qualitative questions, and focused respondents’ minds on skills issues and the fact that immigrants get by without asking for help, substantial numbers of respondents, both white and black, acknowledged that immigrants might have positive roles in the town. It was stated, for example, that Zimbabwean labour can be very good value for money, that many Mozambicans have sophisticated mechanical skills, that East Asians are impressive entrepreneurs, and that many immigrant traders sell affordable goods. For example, people who were otherwise scathing about Mozambicans acknowledged that hand-made household containers made by Mozambicans were very popular in the townships.

Although most local people insisted that high-level technical and professional skills and investment were all that South Africa needed from foreigners, some grudgingly conceded, for example, that Mozambican builders were very good and of benefit to the economy of Witbank. A majority of business people indicated that immigrant occupational activity added value to the town.

The one thing they would not concede, however, was that Nigerians had any saving graces. The reasons for this are perceptions of crime, including fraudulent schemes, child prostitution rackets, and drug-dealing.

**‘Immigrants are criminals’, but the police disagree**

Local residents, business people, and officials all dwelled on the alleged criminal tendencies of immigrants, sometimes with lurid accounts of heinous acts. However our sample of officials included the two most senior police officials in the town. They were very clear: immigrants in general were no more inclined to criminal activity than South Africans in similar circumstances; in fact, they were less so. One of these policemen made an exception in the case of Nigerians, but the other was more cautious.

Taking all the responses and indications into account, it seems clear that crime is a prime cause of negative attitudes. Levels of crime in Witbank are high, and perceived as threatening by all its residents. Given the constant anxiety it causes, residents tend to project this on to a known and visible agency, and immigrants are that scapegoat.

This unfortunate projection is made easier by the fact that so many immigrants are not legally present in the country, and therefore tend not to interact with Witbank residents as much as they would in other circumstances. ‘Strangers’ elicit xenophobic reactions, and the insecure status of many immigrants means that they remain strangers for longer than they would otherwise need to.

**Xenophobia is a torrent that evaporates**

South Africa is widely believed to be a highly xenophobic society in which suspicion, fear, and rejection of foreigners create communal tensions that have negative political, social, and economic effects. Among other things, it is believed these tensions threaten the public order, damage South Africa’s developing human rights culture,
and undermine the economy’s ability to compensate for skills shortages through immigration. As noted earlier, our results initially seem to confirm that South Africans seethe with hostility to foreigners. Almost all our respondents in the various samples expressed extreme hostility to immigrants. However, two aspects of the findings appear to modify this impression. The first arises from an analysis of respondents’ hostility, and the second from an appraisal of the responses of the immigrants themselves.

Firstly, a statistical analysis of the xenophobic reactions by Witbank residents revealed that material issues such as crime and competition for scarce resources, as well as reactions in defence of the respondents’ own cultures and languages, were important. Rather than recording a xenophobia that is unyielding and irrational, the negative reactions to foreigners seem to be a projection of the respondents’ own interests, dilemmas, and fears.

In other words, these could be the reactions of poor communities threatened by poverty, crime, and unemployment, in which people lack confidence as individuals and have the feeling of being victims themselves, and where their few sources of pride are in their own cultures. The reaction of middle-class respondents – overwhelmingly white, and largely Afrikaans-speaking – were even more negative than those of black respondents. However, the largely positive attitude of whites to immigration to Witbank from other parts of South Africa seems to suggest that their reaction is not motivated by racism, but rather, as in the case of their black counterparts, by insecurity and resentment of competition – even if this latter point is in sympathy with local black people rather than felt directly.

Secondly, our interviews with immigrants themselves showed that much of the hostility expressed is defensive rhetoric, and that, by and large, Witbank treats its foreigners rather well. Nearly 90 per cent of the immigrants felt good about the way they were treated, more than two thirds liked Witbank and its people, and most of them said they would like to stay until they decided whether or not to go home or ‘retire’ to the warmer coast of South Africa. More than two thirds had no complaints about officials of the Department of Home Affairs. Overall, there was little sign of the negative effects on public order, human rights, and the economy that are assumed to accompany the kind of verbal hostility that marked the responses of Witbank residents. So, however we may interpret the causes of these xenophobic reactions, ‘on the ground’, they appear, in the case of Witbank at least, to be surprisingly mild.

Given that, in one way or another, residents and immigrants seem to have reached a *modus vivendi*, one cannot expect immigration into Witbank to abate. Because they provide networks of support for relatives and friends who are still in their home countries, the current cohort of immigrants constitute the end point of a pipeline of continuing entry into the town, and the messages they are sending home are that they can find a more than tolerable place in Witbank.

**ISSUES AND QUESTIONS**

In presenting a summary of the main findings, we should emphasise again the dual nature of the study, as a pilot for a wider investigation and a case study in its own...
right. The main sample was relatively small, but it was supported by targeted sub-samples of key informants, including immigrants themselves. The extent to which any urban location can be ‘typical’ of the country as a whole is of course debatable, and extrapolating the Witbank findings to the whole country would have to be done very cautiously, at least until similar case studies are done. Nevertheless, we believe the depth of focus allowed by a targeted survey and interviews conducted in a specific location can validly inform debate and policy about immigration.

From this perspective, we would like to highlight the following:

• The Witbank case study shows that a medium-sized South African industrial town can be a magnet for sustained international migration, not only across the border with a neighbouring state - in this case Mozambique - but from diverse locations much further afield. As we have already noted, interesting and perhaps unexpected as this is, this is insufficient evidence on which to base ambitious generalisations about the whole of South Africa.

• As regards the extent of immigration, by arriving at a tentative and perhaps conservative assessment of just under 5 per cent of adults, the study confirms the gap between popular perceptions and systematic attempts to estimate the number of foreign-born people in South Africa as a whole. However, although any addition to available empirical evidence is welcome, this modest study is far from conclusive.

• The main research report goes to some lengths to audit its method, and concludes that if there was an error it was probably on the side of underestimation. In addition, there is real uncertainty over the status of international migrants to Witbank, not only for the obvious reason that undocumented migrants are reluctant to be surveyed, but also because of the apparent ease with which documents can be obtained in irregular ways. Hence there may be many ‘undocumented’ migrants whose presence is validated by ‘genuine’ but fraudulently obtained documents. The blunt truth is that while we can cautiously estimate figures for the number of foreigners in Witbank, we do not know the respective proportions of legal and illegal among them.

• The profiles of individuals constructed from immigrant interviews suggest that despite being modestly skilled in general, and coming from some of the poorest areas in the world, immigrants to Witbank tend to be law-abiding, resourceful, adaptable, and not deterred by xenophobia or official maltreatment.

• One marked feature of the findings concerns the proportion of migrants who are involved in entrepreneurial activity. This is an important quality in a country in which levels of entrepreneurial activity are consistently well below the international average.

• The positive qualities and economic resourcefulness that emerged from our findings have enabled immigrants to Witbank to establish a presence there, and maintain the kind of networks that sustain continuing migration. A key factor in this is suggested by the finding that only 35 per cent of foreigners believed they are regarded as foreign by the local population.

• They have also been helped to assimilate by the apparent contradiction between theory and practice in local residents’ feelings of xenophobia. Their strongly held prejudices do not – at least if immigrants themselves are to be believed – systematically translate into prejudicial actions against individual migrants. This finding suggests that we should not rush to simplified conclusions about the nature of South African xenophobia or its consequences.
These main findings raise a number of interesting and potentially important questions for policy-makers.

- Are other towns in Witbank’s peer group of urban areas – for instance, Middleburg, Tzaneen, Newcastle, Brits, and Welkom – experiencing similar immigration flows? If so, then all urgent issues in migration management, from capacity in the public service to public education, need to be truly national.
- How can we address the apparent gap between public perceptions of ‘being swamped’ by immigrants and the more realistic figures produced by independent research? To what extent have immigration policies thus far been influenced by exaggerated perceptions? Have policy options to import much-needed skills been suppressed by such fears?
- The research suggests that negative attitudes by no means always translate into hostile acts, which in turn suggests that we need to know much more about the ‘triggers’ that could turn negative attitudes into hostile action.
- The Witbank findings provide grounds for challenging negative stereotypes of immigrants.
- However, greater realism about numbers and more positive views of immigrants are not enough to dissolve the real challenges posed in any country, as well as this one, by illegal immigrants.
- Perhaps the most intriguing finding was that many immigrants seem to feel assimilated and settled in Witbank. There may be many reasons for the apparent contradiction between negative perceptions on the part of local inhabitants and adjustment on the part of immigrants, and it would be premature to jump to conclusions. Clearly, we need to know more about the roles played by coping strategies such as language acquisition and the possession of documents (whether legitimate or irregular), as well as hierarchies of acceptance and rejection by South Africans of immigrants from different countries, or involved in different types of activities.

Managing migration effectively, humanely and, above all, in the national interest is a public policy challenge facing many countries in both the developed and developing worlds. South Africa is no exception. All too often, all over the world, policies in this field are made in a context of inadequate information and alarmist popular beliefs. If South Africa is to manage its borders effectively, and if business and government are to be free to import the skills needed for South Africa's economic development, the myth of a tidal wave of immigrants breaking on a hostile xenophobic shore has to be dispelled. Unless we acknowledge what these findings tell us, namely that there are fewer immigrants than we think, and they are more productive, entrepreneurial, and assimilated than we believe, the myths will continue to hamper effective policy-making.


3. This was done through factor analysis. A useful illustration of factor analysis is what such an analysis of an oblong box – say, a box of matches – would yield. If one were to enter all the measurements that one can make of such a box – height, width, circumferences, diagonals, volume, top and side surface areas, the analysis will boil it all down to only three major dimensions from which all the other measurements can derived, namely height, width and length. In a less precise way, because of the fluidity and complexity of attitudinal data, a factor analysis of ratio, ordinal, or interval measures in survey data can do much the same.